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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,153	10/21/2003	Hisataka Hirose	1232-5181	6617
27123	7590	03/18/2008	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			TRAN, NHAN T	
			ART UNIT	PAPER NUMBER
			2622	
			NOTIFICATION DATE	DELIVERY MODE
			03/18/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/691,153	HIROSE, HISATAKA	
	Examiner	Art Unit	
	NHAN T. TRAN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 9-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/30/2008 has been entered.

Response to Arguments

2. Applicant's arguments filed 1/30/2008 have been fully considered but they are not persuasive.

The Applicant asserts that Nakano and Kijima, alone or in combination, fails to teach or suggest "second reading mode of reading signals in **one scan** by adding signals ..." However, after considering the application, the Examiner respectfully submits that the application specification does not provide support for the above limitations. Specifically, the specification does not disclose reading signals in **one scan** by adding signals in the second reading mode. Therefore, the rejection is maintained in form of a new ground of rejection using the same previously cited references.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4, 6, 7, 9 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (US 6,765,616) in view of Kijima et al. (US 6,661,451).

Regarding claim 1, Nakano discloses a signal processing apparatus (a digital camera shown in Figs. 1 & 7 and abstract) comprising:

an image sensing device (3) which has a plurality of photoelectric conversion elements covered with a color filter (see Figs. 1 & 2 and col. 4, lines 31-43);

a driver (drive circuit 4 in Fig. 1) which drives said image sensing device in a first reading mode (still recording mode) of separately reading signals from respective lines of photoelectric conversion elements and a second reading mode (monitoring mode) of adding signals generated by the lines of photoelectric conversion elements by at least two signals corresponding to the photoelectric conversion elements of a same color then outputting lines of the added signals (see abstract; col. 8, lines 55-63; col. 8, lines 11-40 and col. 11, lines 13-38 and note that since rows of pixels of the color filter arrangement as shown in Figs. 2, 4, 6 & 8 are added, the pixels having the same color are added accordingly), in said second reading mode, a spatial distance between the barycenters of first ((n+1)th line of A filed in Figs. 6 & 8) and second lines (nth line of B field in Figs. 6 & 8), adjacent to each other, of the added signals being different from a

spatial distance between the barycenters of the second line (nth line of B field) and of a third line (nth line of A field as shown in Figs. 6 & 8) of the added signals that is adjacent to said second line (see col. 8, lines 11-40 and col. 11, lines 12-38, wherein the distance between the gravity centers among the added lines are not equal but deviated by $\frac{1}{2}$ pixel as shown in Figs. 6 & 8);

a switch (14, 15 in Fig. 1) that switches between the first reading mode and the second reading mode (col. 4, lines 23-25 and col. 8, lines 55-63);

a correction unit (interpolation circuit 8 shown in Figs. 1 & 7) that passes signals inputted from the image sensing device without correcting positions of barycenters of the inputted lines of signals when the first reading mode is set, and corrects positions of barycenters of the inputted lines of added signals so that the spatial distances between the barycenters of the first to third lines becomes equal when the second reading mode is set (see col. 8, lines 11-40 and col. 13-38, wherein the spatial distances between the gravity centers of the added lines are corrected only in the monitoring mode but not in the still recording mode).

Nakano does not explicitly teach that the added signals are read out by one scan in the second mode, the same colors in every other line are added and a color order of the added signals being the same as color order of the signals before being added.

However, in the same field of endeavor, Kijima teaches a Bayer arrangement of color filters (Fig. 2, col. 3, lines 35-45). Kijima also teaches various alternative methods for adding adjacent lines of an image sensor, wherein three adjacent lines are added (Figs. 9 & 10) **or** the signals of pixels of the same color in every other line are added in

one scan and the color order of the added signals is the same as color order of the signals before being added (see Figs. 6 & 7 and col. 3, lines 29-34, 59-67, wherein the color order G B G B maintains the same before and after adding).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the apparatus in Nakano to include teaching of Kijima to implement the color filter having a Bayer arrangement of the three primary colors, and the signals generated by the photoelectric conversion elements of the same color in every other line are added in one scan in the second reading method to form a same color order as before adding. Doing this would provide a dynamic image in a non-photographing mode even with a relatively low operation frequency as suggested by Kijima in col. 1, lines 56-61.

Regarding claim 3, Nakano also discloses a signal processing unit (i.e., 10 or 12 in Figs. 1 & 7) that applies camera signal processes suitable for signals whose color order is the same as that of the color filter to the signals outputted from said correction unit (col. 4, lines 17-22).

Regarding claim 4, this claim is also met by the analysis of claim 1, wherein Kijima teaches a Bayer color arrangement.

Regarding claim 6, this claim is also met by the analysis of claim 1, wherein an image sensing apparatus is the digital camera shown in Figs. 1 & 7 of Nakano.

Regarding claims 7, 9 & 10 these method claims are also met by the analyses of claims 1, 3 & 4, respectively.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. and Kijima as applied to claim 7 and in further view of Maeda (US 7,145,598).

Regarding claim 12, although Nakano teaches an information processing apparatus (the digital camera) for performing the signal processing method as discussed in claim 7, Nakano and Kijima do not teach a storage medium for storing program codes which are executed by the information processing apparatus to realize the signal processing method.

It is well recognized by Maeda that an imaging apparatus can include a software program having program codes stored in a recording medium for realizing image processing steps when being executed by a controller or a processor of the apparatus (see Maeda, col. 2, line 65 - col. 3, line 17).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the apparatus of Nakano to include the teaching of Maeda for storing a software program having program codes stored in a storage medium for performing the signal processing method instead of using dedicated hardware circuitry because the software program would provide more flexibility for upgrading the apparatus without reconstructing hardware circuitry.

5. Claims 5 & 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. and Kijima et al. and in further view of Xue et al. (US 6,630,965).

Regarding claim 5, Nakano and Kijima do not explicitly teach the limitations of claim 5 in which the correction unit performs operations of

$P'_{2n} = 1/8 \times P_{2n-2} + 7/8 \times P_{2n}$, and $P'_{2n-1} = 7/8 \times P_{2n-1} + 1/8 \times P_{2n+1}$, wherein P_{2n} and P_{2n-1} represent signals in an even number line and an odd number line, respectively, and P'_{2n} and P'_{2n-1} represent corrected signals in an even number line and an odd number line, respectively.

However, Xue teaches that when summing image signals for an even line, a weighting coefficient of 7/8 is multiplied to the current even line and a coefficient of 1/8 is multiplied to the line located two lines below the current even line (see Xue, Fig. 4 for the newly even field, i.e., line 2 = $7/8 Y_2 + 1/8 Y_4$, and col. 3, lines 44-56). When summing image signals for an odd line, a weighting coefficient of 7/8 is multiplied to the current odd line and a coefficient of 1/8 is multiplied to the line located two lines above the current odd line (see Xue, Fig. 3 for the newly odd field, i.e., line 3 = $1/8 Y_1 + 7/8 Y_3$, and col. 3, lines 13-42). Such weighting ratio is to maintain an approximately normal vertical resolution to avoid degrading in quality when summing of image signals is performed as taught by Xue in col. 1, lines 39-40, 61-63.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Nakano and Kijima with Xue to arrive at the Applicant's claimed invention so that an approximately normal vertical resolution would be

maintained to avoid degrading in quality when summing of image signals is performed as taught by Xue above.

Regarding claim 11, this claim is also met by the analysis of claim 5.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NHAN T. TRAN whose telephone number is (571)272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner, Art Unit 2622